

# **Dell™ Software Update Profile**

**Document Number: DCIM 1038**  
**Document Type: Specification**  
**Document Status: Final**  
**Document Language: E**  
**Date: 2009-12-16**

**Version: 1.0.0**



THIS PROFILE IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND. ABSENT A SEPARATE AGREEMENT BETWEEN YOU AND DELL™ WITH REGARD TO FEEDBACK TO DELL ON THIS PROFILE SPECIFICATION, YOU AGREE ANY FEEDBACK YOU PROVIDE TO DELL REGARDING THIS PROFILE SPECIFICATION WILL BE OWNED AND CAN BE FREELY USED BY DELL.

© 2008 – 2009 Dell Inc. All rights reserved. Reproduction in any manner whatsoever without the express written permission of Dell, Inc. is strictly forbidden. For more information, contact Dell.

*Dell* and the *DELL* logo are trademarks of Dell Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell disclaims proprietary interest in the marks and names of others.

# CONTENTS

Foreword .....	5
Introduction.....	6
1 Scope .....	5
2 Normative References.....	5
2.1 Approved References .....	5
2.2 Other References.....	5
3 Terms and Definitions .....	5
4 Synopsis .....	6
5 Description .....	7
6 Implementation Requirements .....	8
6.1 DCIM_SoftwareInstallationService .....	8
6.2 CIM_ConcreteJob .....	8
7 Methods.....	8
7.1 DCIM_SoftwareInstallationService.InstallFromURI ().....	8
7.2 DCIM_SoftwareInstallationService.InstallFromSoftwareIdentity () .....	9
7.3 DCIM_SoftwareInstallationService. CreateRebootJob () .....	9
8 Use Cases .....	10
8.1 Use Case 1 – Discover SoftwareUpdateProfile .....	10
8.2 Use Case 2 – Get JobID for Updating the BIOS .....	10
9 CIM Elements.....	10
9.1 DCIM_SoftwareInstallationService .....	11
9.2 CIM_ConcreteJob .....	11
9.3 DCIM_LCRegisteredProfile .....	11
ANNEX A (informative) Change Log.....	14
ANNEX B (informative) Dell Extension MOF .....	12

**Figures**

Figure 1 – Software Update Profile: Class Diagram ..... 7

**Tables**

Table 1 – Related Profiles ..... 7

Table 2 – DCIM\_SoftwareInstallationService.InstallFromURI () Method: Return Values ..... 8

Table 3 – SoftwareInstallationService.InstallFromURI () Method: Parameters ..... 8

Table 3 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Return Values ..... 9

Table 4 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Parameters ..... 9

Table 5 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Return Values ..... 9

Table 6 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Parameters ..... 9

Table 7 – CIM Elements: Job Control Profile ..... 10

Table 8 – Class: DCIM\_SoftwareInstallationService ..... 11

Table 9 – Class: CIM\_ConcreteJob ..... 11

Table 10 – Class: DCIM\_LCRegisteredProfile ..... 11

# Software Update Profile

## 1 Scope

The Software Update Profile extends the management capabilities of referencing profiles by adding the capability to create, update, rollback, and reboot platform management jobs.

## 2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

### 2.1 Approved References

DMTF DSP1033, *Profile Registration Profile 1.0.0*

DMTF DSP0200, *CIM Operations over HTTP 1.2.0*

DMTF DSP0004, *CIM Infrastructure Specification 2.3.0*

DMTF DSP1000, *Management Profile Specification Template*

DMTF DSP1001, *Management Profile Specification Usage Guide*

### 2.2 Other References

ISO/IEC Directives, Part 2, *Rules for the structure and drafting of International Standards*, <http://isotc.iso.org/livelink/livelink.exe?func=ll&objId=4230456&objAction=browse&sort=subtype>

Unified Modeling Language (UML) from the Open Management Group (OMG), <http://www.uml.org>

## 3 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **can**

used for statements of possibility and capability, whether material, physical, or causal

### 3.2

#### **cannot**

used for statements of possibility and capability, whether material, physical, or causal

### 3.3

#### **conditional**

indicates requirements to be followed strictly in order to conform to the document when the specified conditions are met

### **3.4**

#### **mandatory**

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

### **3.5**

#### **may**

indicates a course of action permissible within the limits of the document

### **3.6**

#### **need not**

indicates a course of action permissible within the limits of the document

### **3.7**

#### **optional**

indicates a course of action permissible within the limits of the document

### **3.8**

#### **referencing profile**

indicates a profile that owns the definition of this class and can include a reference to this profile in its "Related Profiles" table

### **3.9**

#### **shall**

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

### **3.10**

#### **shall not**

indicates requirements to be followed strictly in order to conform to the document and from which no deviation is permitted

### **3.11**

#### **should**

indicates that among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required

### **3.12**

#### **should not**

indicates that a certain possibility or course of action is deprecated but not prohibited

## **4 Synopsis**

**Profile Name:** Software Update

**Version:** 1.0.0

**Organization:** DCIM

**CIM Schema Version:** 2.19.1

**Central Class:** DCIM\_SoftwareInstallationService

**Scoping Class:** CIM\_ComputerSystem

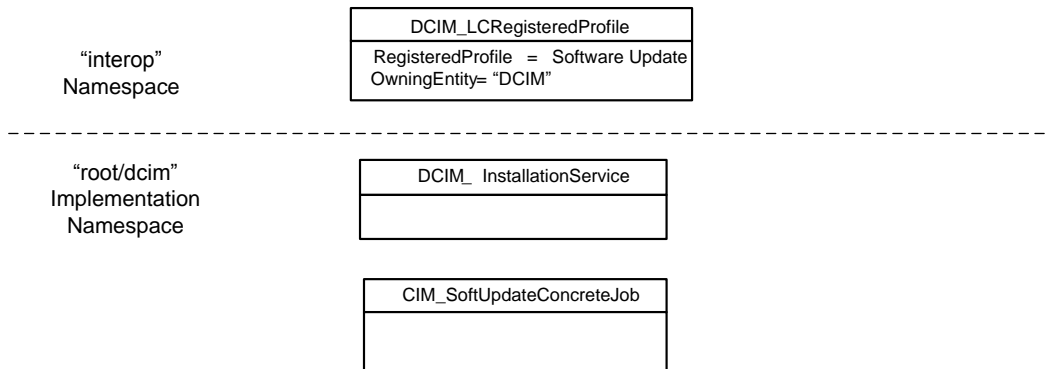
The Software Update Profile extends the management capability of the referencing profiles by adding the capability to create a job for a remote enablement platform management activity, hereafter referred to as “jobs”. DCIM\_InstallationService shall be the Central Class. CIM\_ComputerSystem shall be the Scoping Class. Table 1 identifies profiles that are related to this profile.

**Table 1 – Related Profiles**

Profile Name	Organization	Version	Relationship
Profile Registration Profile	DMTF	1.0.0	Mandatory
Job Control Profile	Dell	1.0.0	Mandatory

## 5 Description

The Software Update Profile describes the firmware update job service and result representations. Figure 1 represents the class schema for the Software Update Profile. For simplicity, the prefix CIM\_ has been removed from the names of the classes. The software update in a managed system is represented by the instance of DCIM\_SoftwareInstallationService class. The software update profile information is represented with the instance of LC\_RegisteredProfile. The result of a software update represented as the instance of DCIM\_SoftUpdateConcreteJob.



**Figure 1 – Software Update Profile: Class Diagram**

## 6 Implementation Requirements

Requirements and guidelines for propagating and formulating certain properties of the classes are discussed in this section.; methods are listed in section 7 and properties are listed in section 9.

### 6.1 DCIM\_SoftwareInstallationService

One instance of DCIM\_JobService shall be instantiated.

### 6.2 DCIM\_SoftUpdateConcreteJob

DCIM\_SoftUpdateConcreteJob is a subclass of CIM\_ConcreteJob and the class definition is extended to include additional properties. An instance of DCIM\_SoftUpdateConcreteJob may be returned as an output parameter for all the extrinsic methods supported by DCIM\_SoftwareInstallationService if the method invocation is successful.

## 7 Methods

This section details the requirements for supporting intrinsic operations and extrinsic methods for the CIM elements defined by this profile.

### 7.1 DCIM\_SoftwareInstallationService.InstallFromURI ()

InstallFromURI method is used generate the JobID for update operation.

**Table 2 – DCIM\_SoftwareInstallationService.InstallFromURI () Method: Return Values**

Value	Description
0	Request was successfully executed.
2	Error
4096	Job started

**Table 3 – SoftwareInstallationService.InstallFromURI () Method: Parameters**

Qualifiers	Name	Type	Description/Values
IN	URI	String	URI location of firmware to update a component.
IN	Target	CIM_SoftwareIdentity REF	Reference to CIM_SoftwareIdentity. InstanceID value of this instance maps with firmware to be updated.
OUT	Message	string	Job Completed Error Message in English.
OUT	MessageID	string	Error MessageID- can be used to index into Dell Message registry files.
OUT	Message Arguments[]	string[]	Substitution variables for dynamic error message.
OUT	Job	CIM_ConcreteJob REF	Reference to concrete job. InstanceID value of this instance contains generated JobID for update operation.



## 7.2 DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity ()

Table 4 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Return Values

Value	Description
0	Request was successfully executed.
2	Error
4096	Job started

Table 5 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Parameters

Qualifiers	Name	Type	Description/Values
IN	Target	CIM_SoftwareIdentity REF	Reference to CIM_SoftwareIdentity. InstanceID value of this instance maps with firmware to be updated.
OUT	Message	string	Job Completed Error Message in English.
OUT	MessageID	string	Error MessageID- can be used to index into Dell Message registry files.
OUT	Message Arguments[]	string[]	Substitution variables for dynamic error message.
OUT	Job	CIM_ConcreteJob REF	Reference to concrete job. InstanceID value of this instance contains generated JobID for update operation.

## 7.3 DCIM\_SoftwareInstallationService. CreateRebootJob ()

Table 6 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Return Values

Value	Description
0	Request was successfully executed.
2	Error
4096	Job started

Table 7 – DCIM\_SoftwareInstallationService.InstallFromSoftwareIdentity () Method: Parameters

Qualifiers	Name	Type	Description/Values						
IN	RebootStartTime	string	Scheduled start time of Reboot						
IN	RebootJobType	string	Input parameter to represent the type of reboot RebootJobType value: <table border="1" data-bbox="954 1612 1386 1789"> <tbody> <tr> <td>1</td> <td>PowerCycle</td> </tr> <tr> <td>2</td> <td>Graceful Reboot without forced shutdown</td> </tr> <tr> <td>3</td> <td>Graceful Reboot with forced shutdown</td> </tr> </tbody> </table>	1	PowerCycle	2	Graceful Reboot without forced shutdown	3	Graceful Reboot with forced shutdown
1	PowerCycle								
2	Graceful Reboot without forced shutdown								
3	Graceful Reboot with forced shutdown								
OUT	MessageID	string	Error MessageID- can be used to index into Dell Message registry files.						

Qualifiers	Name	Type	Description/Values
OUT	Message Arguments[]	string[]	Substitution variables for dynamic error message.
OUT	Job	CIM_ConcreteJob REF	Reference to concrete job. InstanceID value of this instance contains generated JobID for update operation

## 8 Use Cases

This section contains object diagrams and use cases for the Software Update Profile

### 8.1 Use Case 1 – Discover SoftwareUpdateProfile

1. Enumerate (namespace='root/interop', classname="CIM\_RegisteredProfile")
2. Filter the returned enumeration using property filter (RegisteredName="Software Update")
3. Result shall contain one instance of CIM\_RegisteredProfile containing property version="1.0.0"

### 8.2 Use Case 2 – Get JobID for Updating the BIOS

1. Enumerate (namespace='root/dcim', classname=DCIM\_SoftwareIdentity)
2. Pick the SoftwareIdentity instance with Element Name "BIOS"
3. Invoke InstallFromURI() with the URI location where the installable image is located and SoftwareIdentity maps with BIOS.

## 9 CIM Elements

The following table shows the instances of CIM Elements for this profile. Instances of the CIM Elements shall be implemented as described in the following table. Sections 6 "Implementation Requirements" and 7 "Methods" may impose additional requirements on these elements.

**Table 8 – CIM Elements: Job Control Profile**

Element Name	Requirement	Description
<b>Classes</b>		
DCIM_SoftwareInstallationService	Mandatory	See section 9.1
DCIM_LCRegisteredProfile	Mandatory	See section 9.3
CIM_SoftUpdateConcreteJob	Mandatory	See section 9.2
<b>Indications</b>		
None defined in this profile		

## 9.1 DCIM\_SoftwareInstallationService

DCIM\_SoftwareInstallationService is a subclass of CIM\_SoftwareInstallationService.

**Table 9 – Class: DCIM\_SoftwareInstallationService**

Properties and Methods	Requirement	Description
SystemCreationClassName	Mandatory	Key
CreationClassName	Mandatory	Key
Name	Mandatory	Key
SystemName	Mandatory	Key

## 9.2 CIM\_SoftUpdateConcreteJob

CIM\_SoftUpdateConcreteJob is used to represent the platform management action requested by the management application. This requirements are in addition to the requirements listed in the DCIM Job Control Profile 1.0.

**Table 10 – Class: CIM\_SoftUpdateConcreteJob**

Properties and Methods	Requirement	Description
InstanceID	Mandatory	<b>Key</b>
Name	Mandatory	
JobStatus	Mandatory	
RunDay	Mandatory	
RunMonth	Mandatory	
RunStartInterval	Mandatory	
TimeOfLastStateChange	Mandatory	
TimeBeforeRemoval	Mandatory	
DeleteOnCompletion	Mandatory	
ErrorCode	Mandatory	
ErrorDescription	Mandatory	

## 9.3 DCIM\_LCRegisteredProfile

The DCIM\_RegisteredProfile class is defined by the Profile Registration Profile in addition to those mandated by the Profile Registration Profile.

**Table 11 – Class: DCIM\_LCRegisteredProfile**

Properties	Requirement	Description
InstanceID	Mandatory	This property shall have a value of DCIM:SoftwareUpdate:1.0.0
RegisteredName	Mandatory	This property shall have a value of "Software Update"
RegisteredVersion	Mandatory	This property shall have a value of "1.0.0".
RegisteredOrganization	Mandatory	This property shall have a value of 1 (Other).
OtherRegisteredOrganization	Mandatory	This property shall match "DCIM"

# ANNEX A

## (informative)

### Dell Extension MOF

```
// =====  
// DCIM Software Update classes and methods  
// =====  
[ provider("cmpi:dcimsoftupdate"),Version ( "1.0.0" ),Description (   
    "DCIM_SoftwareInstallationService is a Dell extension of"  
    "CIM_SoftwareInstallationService.This class provides"  
    "methods to generate JobID for update and reboot operations")]  
class DCIM_SoftwareInstallationService : CIM_SoftwareInstallationService{  
    [Description ("InstallFromURI().This Method will return a JobID"  
    "for updating a component firmware.")]  
    uint32 InstallFromURI(  
        [IN,Description(  
            "URI location of firmware to update a component."  
            "Supported protocols are FTP,HTTP,TFTP,CIFS,NFS.")]  
        string URI,  
        [IN,Description(  
            "Reference to CIM_SoftwareIdentity."  
            "InstanceId value of this instance maps with software"  
            "identity(firmware in URI Location) to be updated")]  
        CIM_SoftwareIdentity REF Target,  
        [IN(false),OUT,Description(  
            "Error Message ID- can be used to index into Dell"  
            "Message registry files")]  
        string MessageID,  
        [IN(false),OUT,Description(  
            "Completed error message in English" )]  
        string Message,  
        [IN(false),OUT,Description(  
            "Substitution variables for dynamic error messages.")]  
        string MessageArguments[],  
        [IN(false),OUT,Description(  
            "Reference to instance CIM_ConcreteJob."  
            "CIM_ConcreteJob instance returns a JobID Value of"  
            " update operation ")]  
        CIM_ConcreteJob REF Job  
    );  
  
    [Description ("InstallFromSoftwareIdentity().This Method is"  
    "called to return a update JobID,for updating a component"  
    "firmware from local persistent location.")]  
    uint32 InstallFromSoftwareIdentity(  
        [IN,Description(  
            "Reference to CIM_SoftwareIdentity.InstanceId value"  
            "of this instance maps with available softwareidentity"  
            "(firmware)in local persistence storage")]  
        CIM_SoftwareIdentity REF Target,  
        [IN(false),OUT,Description(  
            "Error Message ID- can be used to index into Dell"  
            "Message registry files")]  
        string MessageID,
```

```

        [IN(false ), OUT, Description (
            "Completed error message in English" )]
string Message,
        [IN(false),OUT ,Description(
            "Substitution variables for dynamic error messages.")]
string MessageArguments[],
        [IN(false),OUT ,Description(
            "Reference to instance CIM_ConcreteJob."
            "CIM_ConcreteJob instance returns a JobID Value of"
            "this operation ")]
        CIM_ConcreteJob REF Job
);

[Description ("CreateRebootJob().This Method will return the"
"JobID for Rebootjob.")]
uint32 CreateRebootJob(
    [IN, Description(
        "This Parameter is a Scheduled StartTime for Reboot"
        "in yyyyymmddhhmmss datetime format")]
    string RebootStartTime,
    [IN, Description(
        "Input Parameter represents the type of Reboot "
        "1 - PowerCycle"
        "2 - Graceful Reboot without forced shutdown"
        "3 - Graceful Reboot with forced shutdown")]
    uint16 RebootJobType,
    [IN(false),OUT,Description(
        "Error Message ID- can be used to index into Dell"
        "Message registry files")]
    string MessageID,
    [IN(false ), OUT, Description (
        "Completed error message in English" )]
    string Message,
    [IN(false),OUT ,Description(
        "Substitution variables for dynamic error messages.")]
    string MessageArguments[],
    [IN(false),OUT ,Description(
        "Reference to instance CIM_ConcreteJob."
        "CIM_ConcreteJob instance returns a JobID Value"
        "of update operation")]
    CIM_ConcreteJob REF Job
);
};

```